

Central Pacific Transcontinental Railroad, Tunnel 1  
Southern Pacific Donner Pass Route Tunnels  
Milepost 164.34  
Blue Cañon vicinity  
Placer County  
California

HAER No. CA-207

HAER.  
CAL  
31-BLUCA,  
1-

**PHOTOGRAPHS**

**WRITTEN HISTORICAL AND DESCRIPTIVE DATA**

Historic American Engineering Record  
National Park Service  
Western Region  
Department of the Interior  
San Francisco, CA 94107

HAER  
CAL  
31-BLUCA,  
1-

## HISTORIC AMERICAN ENGINEERING RECORD

### CENTRAL PACIFIC TRANSCONTINENTAL RAILROAD, TUNNEL 1

HAER No. CA-207

**Location:** Southern Pacific Donner Pass Route Tunnels  
Milepost 164.34, southwest (railroad west) of Blue Cañon, Placer County, California.

UTM: 10-696500-4346430  
Quad: Westville, Calif. 7.5', 1952 (photorevised 1979)  
(west portal)

UTM: 10-696585-4346580  
Quad: Westville, Calif. 7.5', 1952 (photorevised 1979)  
(east portal)

**Date of Construction:** 1868, 1913.

**Engineer:** Theodore Judah and Central Pacific Railroad Engineering Department (1868); Southern Pacific Railroad Engineering Department (1913).

**Present Owner:** Union Pacific Railroad, 1416 Dodge Street, Omaha NE 68101.

**Present Use:** Railroad Tunnel.

**Significance:** The Central Pacific First Transcontinental Railroad is a segment of the western half of the first transcontinental railroad, built from Sacramento, California to Promontory Summit, Utah between 1863 and 1869, where it joined the Union Pacific Railroad which had built west from Omaha. For the purpose of the current project, the first transcontinental railroad was found likely to be eligible for the National Register of Historic Places at the national level of significance under Criterion A for its significance in transportation history, in uniting the East and the West, and in the development of the West. The railroad's period of significance is 1869 to 1945, from the line's completion in 1869, through the years of its role in the settlement and development of the West, to the conclusion of the railroad's achievements in World War II. Tunnel 1 is a contributive element of this historic property.

**Report Prepared By:** John W. Snyder  
Co-Principal  
P.S. Preservation Services  
P.O. Box 191275  
Sacramento CA 95819

## **I. DESCRIPTION**

Tunnel 1 is a 518-foot, double track railroad tunnel, with reinforced concrete portal faces and granite ashlar voussoirs, belt courses and coping, and wingwalls. As-built in 1868 by the Central Pacific, the tunnel was a single track structure, with timbered approaches. The tunnel is on a right-hand curved alignment varying from eight degrees, thirty-four minutes to eight degrees, fifty minutes, and carries the tracks of the Union Pacific Railroad's (formerly Southern Pacific) Donner Pass line.

## **II. HISTORICAL INFORMATION**

When the Central Pacific built the first transcontinental rail line over the Sierra Nevada in 1863-1869, expediency stemming from time considerations and from the hand labor used to build the line forced a circuitous route that, wherever possible, hugged the outside slopes of hills to maintain reasonable grades in the climb over the mountain rampart. The builders were able to avoid tunneling until they had nearly reached Blue Cañon, more than seventy miles from Sacramento. There they built Tunnel 1, and sequentially numbered the tunnels following to the east as they pushed the tracks toward Promontory Summit and the May 1869 meeting with the Union Pacific.

The Southern Pacific enlarged Tunnel 1 to its present dimensions as an element of the reconstruction and double-tracking of the original Central Pacific line between Colfax and Blue Cañon. [For a full history of this line and of this undertaking, see the documentation set for the Central Pacific Transcontinental Railroad (Southern Pacific Overland Route) (Southern Pacific Donner Pass Route), Southern Pacific Donner Pass Route Tunnels, HAER No. CA-196.] After assuming control of the Southern Pacific/Central Pacific and merging them with the Union Pacific in 1901, Edward H. Harriman had embarked on a series of huge reconstruction projects system-wide. One of these was the double-tracking of the original Central Pacific line over Donner Pass, the first segment of which was from Rocklin to Colfax, with the second segment east from Colfax to Blue Cañon.

Whereas the first phase of the double-tracking often saw the construction of the second track a considerable distance from the old line in order to secure gentler grades, during the second phase of double-tracking the lines paralleled each other closely enough that the railroad designed the tunnels in this reach--new Tunnels 33 and 34 (HAER CA-206), and the rebuilt Tunnel 1--as double-track structures. Ultimately only Tunnel 1 functioned in that manner. At Tunnels 33 and 34, the grade of the new line proved too steep for eastbound trains, and in 1929 the railroad removed the second track from these tunnels, using them instead to carry a single track for westbound (downhill) trains, while the old Central Pacific alignment around the outside of Cape Horn continued to handle eastbound trains. At Tunnel 1 the old and new lines were on the same alignment, and the rebuilt tunnel functioned as designed.

### III. SOURCES

Beebe, Lucius. *The Central Pacific & The Southern Pacific Railroads*. Berkeley, CA: Howell-North, 1963.

"Colfax Grade Revision; Southern Pacific," *Railway Age Gazette*, 48:7, February 18, 1910.

Daggett, Stuart. *Chapters on the History of the Southern Pacific*. New York: Augustus M. Kelley, Publishers, 1966; originally published 1922.

Hofsommer, Don L. *The Southern Pacific, 1901-1985*. College Station, TX: Texas A&M University Press, 1986.

Howard, Robert West. *The Great Iron Trail: The Story of the First Transcontinental Railroad*. New York: G. P. Putnam's Sons, 1962.

Kraus, George. *High Road to Promontory: Building the Central Pacific across the High Sierra*. Palo Alto: American West Publishing Company, 1969.

"Millions To Be Expended: Southern Pacific Is to Be Put in Fine Shape," *The Sacramento Bee*, June 25, 1901.

"Oil Burning Mallets; Southern Pacific," *Railway Age Gazette*, 50:24a, June 16, 1911.

"Railroad Construction," *The Railroad Gazette*, 63:15.

Sabin, Edwin L. *Building the Pacific Railway*. Philadelphia and London: J. B. Lippincott Company, 1919.

Signor, John R. to Richard Starzak, Memorandum, "Brief Chronological History of Sierra Tunnels," October 4, 1996.

"The Days When The Central Pacific Was Young," *Southern Pacific Bulletin*, 9:5, May 1920.

"The Harriman Influence," *The Railroad Gazette*, 42:2, January 11, 1907.

United States Geological Survey. Topographic maps. Westville, Calif. quadrangle, 7.5' series, 1952 (photorevised 1979).

### IV. PROJECT INFORMATION

As a result of the 1996 merger of the Union Pacific and Southern Pacific Railroads, a federal undertaking under the jurisdiction of the Surface Transportation Board of the U.S. Department of Transportation, and in order to accommodate freight trains utilizing longer and taller cars and loads--tri-level auto rack cars and cars carrying double-stacked containers, the Union Pacific will need to increase tunnel clearances on the former Southern Pacific Donner Pass Route. The tunnels, built between 1868 and 1925, are contributing elements of the National Register-eligible Southern Pacific Donner Pass Route Tunnels Historic District. All tunnels have been laser-

**CENTRAL PACIFIC TRANSCONTINENTAL RAILROAD, TUNNEL 1**  
**HAER No. CA-207**  
**Page 4**

measured and the railroad will determine clearance needs on a tunnel-by-tunnel basis. Some, because of curved alignment, will require interior work to allow for longer cars such as tri-level auto rack cars; others will require both interior and portal work to provide sufficient vertical clearance for "double-stack" container cars. The latter work may impact the character-defining tunnel portals if crown mining of the tunnels (as opposed to lowering the tunnel floors) is selected. Inasmuch as this would cause an adverse effect to the tunnels, Union Pacific has elected to record the tunnels for the Historic American Engineering Record. Documentation was carried out by P.S. Preservation Services, John Snyder Field Director and Historian, and Ed Andersen, Photographer. Photos were made in August 1997, and research was carried out from August 1997 through March 1998.